Chapter 500: STORMWATER MANAGEMENT

SUMMARY: This chapter describes stormwater quantity and quality standards for activities licensed under the Stormwater Management Law and the Site Location of Development Law.

1. Applicability. This chapter applies to (A) a project that requires a stormwater permit pursuant to 38 M.R.S.A. § 420-D, and (B) a development that may substantially affect the environment and requires a site location of development (Site Law) permit pursuant to 38 M.R.S.A. §§ 481 - 490.

2. Definitions. As used in this chapter and Chapter 502, unless the context otherwise indicates, the following terms have the following meanings.

The terms "freshwater wetlands", "coastal wetlands", "great pond", and "river, stream or brook" have the same meaning as defined in the Natural Resources Protection Act at 38 M.R.S.A. § 480-B. These resources are referred to as "wetlands and waterbodies".

"Watersheds of waterbodies most at risk from new development" (waterbodies most at risk) and "sensitive or threatened regions or watersheds" are listed in Chapter 502.

A. Detention basin. A basin designed and constructed to provide temporary storage of runoff in order to control outflow from the site and peak flow in receiving waters, and to provide gravity settling of pollutants.

B. Direct watershed of a waterbody. The land area that drains, via overland flow, natural or man-made drainage systems, or waterbodies or wetlands, to a given waterbody without first passing through an upstream waterbody classified as GPA.

C. Disturbed area. All land areas that are stripped, graded, or grubbed at any time during the site preparation for, or construction of, a project unless the areas are returned to a condition with the same drainage patterns and vegetative cover type that existed prior to the disturbance. Both planting conducted to restore the previous cover type and restoration of any altered drainage patterns must occur within one year of disturbance.

"Same cover type" may include hydrologically improved cover type. For example, an area that was previously pasture may be replanted as forest.

"Disturbed area" does not include maintenance or redevelopment of an impervious area within the footprint of that impervious area, but does include new impervious areas. A natural or man-made waterbody is not considered a disturbed area.

D. Erosion and sedimentation control best management practices (erosion BMPs). Methods, techniques, designs, practices, and other means to control erosion and sedimentation, as approved or required by the department.

NOTE: For guidance, see "Maine Erosion and Sedimentation Control Handbook for Construction -- Best Management Practices", Cumberland County Soil and Water Conservation District and Maine Department of Environmental Protection (1991).

E. Impervious area. The total area of a parcel that consists of buildings and associated constructed facilities or areas that will be covered with a low-permeability material, such as asphalt or concrete, and areas such as gravel roads and unpaved parking areas that will be compacted through design or use to reduce their permeability. Common impervious areas include, but are not limited to, rooftops, walkways, patios, driveways, parking lots or storage areas, concrete or asphalt paving, gravel roads, packed earthen materials, and macadam or other surfaces which similarly impede the natural infiltration of stormwater. A natural or man-made waterbody is not considered an impervious area.

F. Infiltration. Any process specifically used to meet the stormwater quantity and quality standards of this rule by actively directing some or all of the stormwater into the soil. For the purposes of this rule, infiltration does not include the incidental wetting of soil in ditches, drains, or other means of conveying stormwater.

G. Lake or pond. (1) A great pond; or (2) a lake or pond of any size used as a public water supply.

H. Peak flow. The greatest rate of flow in a natural or man-made drainageway, measured as volume per unit of time, resulting from a storm of specified frequency and duration.

I. Public water supply. Any source of water supplying a system that has at least 15 service connections or serves at least 25 individuals daily at least 60 days out of the year and falls within one of the following categories:

(1) A "community water supply" that serves at least 15 service connections used by year-round residents or regularly serves at least 25 year-round residents; or

(2) A "non-community, non-transient water supply" that serves at least 25 of the same persons for 6 months or more per year.

J. Stormwater. The part of precipitation, including runoff from rain or melting ice and snow, that flows across the surface as sheet flow, shallow concentrated flow, or in natural or man-made drainageways.

K. Stormwater best management practices (stormwater BMPs). Methods, techniques, designs, practices, and other means to control the quality and quantity of stormwater, as approved or required by the department.

NOTE: For guidance, see "Stormwater Management for Maine: Best Management Practices", Maine Department of Environmental Protection (1995).

L. Subwatersheds. For purposes of the stormwater quantity standards, areas of the site with unique times of concentration. This definition reflects the stormwater quantity models in general use in 1996; other areas may qualify as subwatersheds or other definitions may be applicable depending upon the characteristics of the site or the model used. The department will review all alternative definitions on a case-by-case basis.

For purposes of the stormwater quality standards, a "subwatershed" is an area that drains to a specific stream or lake.

M. Two (ten, twenty-five)-year, 24-hour storm. A precipitation event with a 50% (for two-year), 10% (for ten-year), or 4% (for 25-year) probability of being equaled or exceeded during any twenty-four hour period during any given year.

N. Watershed. The land area that drains, via overland flow, natural or man-made drainage systems, waterbodies, or wetlands to a given waterbody or wetland.

O. Wellhead protection area. The surface area around a public water supply well or wellfield within which contaminants introduced to groundwater are most likely to have adverse impacts on the quality of water supplied by that well. Unless otherwise approved by the Department of Human Services, the radius (r, in feet) of this area is determined by the equation r = 0.038Q-247 where Q = volume of water pumped in gallons/day, except that r = 300 feet for all systems serving 250 people or less or using less than 15,000 gallons/day and r = 2,500 feet for systems serving 1,200 people or more or pumping 72,000 or more gallons/day.

3. Stormwater quantity standards. The applicant for a stormwater permit must meet the stormwater quantity standards described in this section, except as provided below, if a project includes 20,000 sq. ft. or more of impervious area or five acres or more of disturbed area in the direct watershed of a waterbody most at risk from new development (waterbody most at risk), or one acre or more of impervious area or five acres or more of disturbed area elsewhere. The applicant for a site location of development permit must meet the standards described in this section.

A. Peak flow from the site and peak flow of the receiving waters. A stormwater management system must detain, retain, or result in infiltration of stormwater from 24-hour storms of 2-, 10-, and 25-year frequencies such that the peak flow of stormwater from the site does not exceed the peak flow of stormwater from the site prior to the undertaking of the project. The peak flow of the receiving waters may not be increased as the result of the stormwater runoff from the site for 24-hour storms of 2-, 10-, and 25-year frequencies. In municipalities with designated 100-year flood elevations, the site runoff may not adversely affect the designated 100-year flood elevations.

Nothing in this subsection may be construed to indicate that the applicant may discharge any quantity of stormwater without adequate treatment to remove potential contaminants, as required by the stormwater quality standard or by 38 M.R.S.A. § 413.

The department may grant a variance from this standard only in the cases specifically identified in (1) - (3) below. The variance in (1) does not apply in the case of a river or portion of a river, within two miles upstream from the point of any public water supply intake. The variances in (2) do not apply to a project with a total of three acres or more of impervious area or 10 acres or more of disturbed area.

(1) Discharge to the ocean, a great pond, or a major river segment. A project conveys stormwater exclusively in a manmade piped or open drainage system directly into the ocean, into a great pond, or into the main stem of a river or portion of a river identified below. Areas of the project or adjoining properties to be flooded during the 2-, 10-, and 25-year, 24-hour storms must be identified and easements secured, if necessary. A project that changes the flow type (example--sheet to shallow concentrated), changes the flow channel, or increases the stormwater discharge must secure easements on the intervening property that

meet the easement requirements in Section 3(F). The discharge may not result in erosion of any upland, or coastal or freshwater wetlands.

The rivers or portions of rivers identified for the purpose of this variance are: Saco River; Androscoggin River; Kennebec River; West Branch Penobscot River below Elbow Lake; East Branch Penobscot River below Wassataquiok Stream; Piscataquis River below Dover-Foxcroft; St. Croix River below Grand Lake; Aroostook River below Ashland; and St. John River below the Allagash River. In addition, the department may allow a variance for other rivers, if the department determines that the increase in peak flow from the site will not significantly affect the peak flow of the receiving waters or result in unreasonable adverse impact on a wetland or waterbody.

If additional information is required to make a determination concerning increased flow, the department may only consider an increase after the applicant agrees, pursuant to 38 M.R.S.A. § 344-B(3)(B), that the review period may be extended as determined to be necessary by the department.

(2) Project discharging to a buffer

(a) Road discharging to buffer. A project consists only of a road, and the road discharges no less than 50% of the runoff in a particular subwatershed into a wooded buffer 50 feet or more in width, or a non-wooded vegetated buffer 100 feet or more in width, by means of direct discharge into sheet flow or ditch turnouts into sheet flow. The variance only applies to that subwatershed.

(b) Project other than road discharging to buffer. A project other than a road discharges no less than 75% of the runoff in a particular subwatershed into a wooded buffer 50 feet or more in width, or non-wooded vegetated buffer 100 feet or more in width. The variance only applies to that subwatershed. The runoff must be discharged into the buffer in sheet flow.

The area of the buffer must be at least equal in size to one-quarter of the area being treated. Any discharge to a freshwater or coastal wetland must be in accordance with Sections 3(H) and 3(I). The "width" referred to in this paragraph is measured along the direction of flow through the buffer.

(3) Public stormwater system. A project discharges its stormwater flow into a stormwater system of a municipality or public utility, when the applicant has permission to discharge stormwater into that system, and demonstrates that the municipality or public utility has determined that it has adequate capacity to accommodate the change in flow.

The department may allow an insignificant increase in the peak flow from the site or in the peak flow of the receiving waters, if the department determines that the increase cannot be avoided by reasonable changes in project design or density, such as changes in flow routing or build-out location. The increase may not unreasonably increase the extent, frequency, or duration of flooding at any downstream control structures, including but not limited to culverts, bridges, crossings, and dams, or have an adverse affect on wildlife habitat, or on fisheries or aquatic habitat, in any receiving water or downstream water. The point of stormwater discharge must be protected from erosion due to the increased flow during all flow conditions in the receiving water, including low-flow conditions, and there may be no increase in the rate of erosion in any receiving water due to the increase in post-

development stormwater discharge. In making its determination, the department shall consider cumulative impacts. If additional information is required to make a determination concerning increased flow, the department may only consider an increase after the applicant agrees, pursuant to 38 M.R.S.A. § 344-B(3)(B), that the review period may be extended as determined to be necessary by the department.

B. Grading or other construction activity. Grading or other construction activity on the site may not impede or otherwise alter natural or man-made drainageways so as to:

(1) Have an unreasonable adverse impact on a protected natural resource;

(2) Flood an area of the parcel not specifically planned and designated for such flooding; or

(3) Flood an area of any other parcel unless an easement is obtained.

A "drainageway" is a channel or course within which surface discharge of water may occur. Drainageways include but are not limited to rivers, streams and brooks (whether intermittent or perennial), swales, ditches, pipes, culverts, and wetlands with localized discharge of water.

C. Channel limits and runoff areas. The design of piped or open channel systems must be based on a 10-year, 24-hour storm without overloading or flooding beyond channel limits, except when the piped system is overloaded to provide detention or retention of the stormwater. In addition, the areas expected to be flooded by runoff of a 10-year or 25-year, 24-hour storm must be designated in the application and approved by the department, and no buildings or other similar facilities may be planned within such areas. This does not preclude the use of parking areas, recreation areas, or similar areas from use for detention of storms greater than the 10-year, 24-hour storm. Primary access roads to the project and public roads may not be flooded during or as a result of a 25-year, 24-hour storm or, if required by the municipality, a 100-year, 24-hour storm.

D. Detention basins

(1) Outlet structure and emergency spillway capacity. The outlet structure(s) of each detention basin must be designed to control 24-hour storms of 2-, 10-, and 25-year frequencies. Each detention basin must be constructed with an emergency spillway designed to independently convey the unrouted runoff from a 25-year, 24-hour storm event.

(2) Flow conditions. Concentrated flows may not be discharged to an off-site area that has not received concentrated flows before. When detention is used on a site, the pre-construction flow condition, whether sheet flow or concentrated, must be maintained in the post-construction condition.

(3) NRPA approval. The basin may not be located within or adjacent to a wetland, stream, river or brook (intermittent or perennial), and no berm may be placed within or adjacent to a wetland for detention or as part of the stormwater system, unless approved by the department pursuant to, or exempted from, the Natural Resources Protection Act (NRPA).

(4) Elevation. The minimum elevation of the top of the settled basin embankment must be one foot above the water surface in the detention basin with the emergency spillway flowing at design depth.

(5) Location of emergency spillway. Emergency spillways must be located on undisturbed original non-fill soil wherever possible. If only a fill soil is available, a spillway may be allowed through a berm if the following standards are met.

(a) No emergency spillway may be located within 20 feet horizontal of the principal spillway.

(b) Each emergency spillway must be riprapped with a specified design d50 (provide calculations) and underlain with a geotextile (non-woven) and a well-graded gravel filter.

(6) Basin design. Where permanent embankment-type storage or retention basins are planned, the basins must be designed in accordance with good engineering practice, such as outlined in the U.S.D.A. Natural Resources Conservation Service, "Engineering Field Manual"; Maine Erosion and Sediment Control Handbook for Construction: Best Management Practices (March 1991); and "Design and Construction of Urban Stormwater Management Systems", American Society of Civil Engineers, Manual of Engineering Practice Number 77, 1992; or other appropriate references.

A "retention basin" is a basin designed and constructed to hold runoff without release by any means except evapotranspiration, infiltration, or emergency bypass. A retention basin may be used to temporarily store water for use in fire control, irrigation, or other land applications, provided that other applicable criteria related to these applications are met. Any given basin may function both as a retention basin and a detention basin, depending on the requirements of the site, different design storms, and other factors.

E. Maintenance. The permittee must maintain all components of the stormwater management system until it is formally accepted by the municipality or quasi-municipal district, or is placed under the jurisdiction of a legally created association that will be responsible for the maintenance of the system. The charter of such an association must be approved by the department. If a municipality or quasi-municipal district chooses to accept a stormwater management system, it must provide a letter to the department stating that it assumes responsibility for the system, and will maintain all components of the system in compliance with department standards. Upon such assumption of responsibility, and approval by the department, the municipality, quasi-municipal district, or association must comply with all terms and conditions of the permit.

F. Easements and covenants

(1) Areas not owned or controlled by the permittee. If a project changes the flow type (example--sheet to shallow concentrated), changes the flow channel, increases the stormwater discharge, or causes flooding in areas not owned or controlled by the applicant, the applicant must secure easements. These easements must include all areas of flow or areas to be flooded during the 2-, 10-, and 25-year, 24-hour storms on properties not owned or controlled by the permittee, must be secured from all affected property owners, and must be recorded at the appropriate county registry of deeds. Drainage easements must extend up to, but need not include, the channel of any river, stream or brook accepting flow from the project. Areas to be flooded include those to be flooded due to overloading of underground storm sewers and equivalent utilities.

(a) Suitable land-use restrictions must be included in the easements to prevent any activity that might affect drainage across the area.

(b) Drainage easements over private property must conform with the center line of watercourses, natural or manmade, and must have a minimum width of 30 feet, or 10 feet on each side of the channel required to accommodate the flow from a 25-year, 24-hour storm, whichever is greater. Drainage easements for piped drainageways must have a minimum width of 30 feet, or 10 feet on each side of the outer edge of the pipe, whichever is greater.

(c) The increase in flow may not cause erosion of soil or sediment or otherwise have an adverse impact on existing uses of the affected property.

(2) Areas transferred. When the permittee transfers land that contains areas of flow or areas to be flooded during the 2-, 10-, or 25-year, 24-hour storm, restrictive covenants protecting these areas must be included in any deeds or leases and recorded at the appropriate county registry of deeds. Also, in all conveyances of such areas and areas containing parts of the stormwater management system, the permittee shall include deed restrictions making the conveyance subject to all applicable terms and conditions of the permit. These terms and conditions must be incorporated by specific and prominent reference to the permit in the deed. All conveyances must include in the restrictions the requirement that any subsequent conveyance must specifically include the same restrictions unless their removal or modification is approved by the department. These restrictions must be written so as to be enforceable by the department, and must reference the permit number.

Approval of a transfer of the affected property is required pursuant to Section 9(A)(4), and may be accomplished by means of a permit by rule on a form provided by the department. Such an application is deemed approved effective 14 calendar days after the department receives the notification form, unless the department approves or denies the application, or notifies the applicant that the application is ineligible for permit by rule, or requires additional information or further review, prior to that date. If the department does not otherwise notify the applicant within the 14-day period, the application is deemed approved by the department.

G. Buffers. Buffers must be protected from alteration through a conservation easement to which the department is a party, deed restrictions, or similar measures.

H. Discharge to freshwater or coastal wetlands. Freshwater and coastal wetlands must receive stormwater in the same manner as before the project unless otherwise approved or required by the department. In general, new or increased stormwater discharges into wetlands must be put into sheet flow, using level spreaders, if needed. The department will consider alternate methods if those methods will not unreasonably adversely affect the wetland.

I. Level spreaders. The stormwater flow rate to each level spreader must be less than 0.25 cubic feet per second (0.25 cfs) per foot of length of level spreader to accommodate the flow from a 10-year, 24-hour storm. The maximum length of each level spreader must be 25 feet.

J. Wellhead protection area (public water supply) standard. Any project proposing infiltration of stormwater within the wellhead protection area of a public water supply must provide adequate pre-treatment of stormwater prior to discharge of stormwater to the infiltration area, if pre-

treatment is recommended as part of applicable stormwater best management practices or required by the department. The infiltration area must minimize discharge of soluble pollutants to groundwater, and must be maintained in order to assure that its capacity for infiltration and pollutant removal is unimpaired.

4. Stormwater quality standards. The applicant for a stormwater permit must meet the stormwater quality standards described under Subsection (A) below if the project includes 20,000 sq. ft. or more of impervious area or five acres or more of disturbed area in the direct watershed of a waterbody most at risk from new development (waterbody most at risk), or one acre or more of impervious area or five acres or more of disturbed area in a sensitive or threatened region or watershed. The applicant for a site location of development permit must meet the standards described in Subsection (B) below. The applicant for a stormwater permit or a site location of development permit must also meet the standards in Subsection (C) below if infiltration is proposed within the wellhead protection area of a public water supply.

Stormwater best management practices appropriate for the site and type of activity must be used to meet the standards specified in this section. The standards must be met at the property line or before the runoff enters a waterbody, whichever point is first reached by the runoff, unless an off-set is allowed under Section 5. Wetlands may not be used to treat stormwater unless approved by the department.

Standards listed in the stormwater quantity section concerning maintenance, easements, and buffers, also apply to maintenance, easements, and buffers associated with stormwater quality controls. See Section 3(E), (F) and (G).

NOTE: Discharge of other waters to a stormwater management system may be prohibited or require additional treatment pursuant to 38 M.R.S.A § 413. A project licensed under the stormwater law, and having more than 3 acres of impervious area, may be required to directly address dissolved or hazardous materials. A project having 3 acres or less of impervious area cannot be required to directly address dissolved or hazardous materials, other than phosphorus, nitrate, and suspended solids, unless infiltration is proposed. See 38 M.R.S.A. § 420-D(1).

A. Phosphorus, total suspended solids (TSS), and basic stabilization standards. This paragraph addresses the "phosphorus standard", the "80% TSS standard", the "sliding scale TSS standard", and the "basic stabilization standard". Subparagraph (1) describes when each standard applies, and subparagraph (2) describes each of the standards.

NOTE: What standard applies may depend upon whether the project is in the watershed of one of the "waterbodies most at risk from new development" or in a "sensitive or threatened region or watershed" listed in Chapter 502. "Lakes most at risk", "rivers, streams and brooks most at risk", and "coastal wetlands most at risk" are types of "waterbodies most at risk."

(1) When each standard must be met. The location of the project determines the standard that applies.

(a) Lakes--All projects in lake watersheds must meet the basic stabilization standard. Additional standards apply if a project is located in the direct watershed of a lake most at risk, or a project with three acres or more of impervious area or five acres or more of disturbed area is located in the direct watershed of any other lake.

(i) If a project is located in the direct watershed of a lake most at risk, one of the following standards must be met.

a. If the lake is a severely blooming lake, the project must meet the phosphorus standard. If the lake is not a severely blooming lake, but the project includes three acres or more of impervious area or five acres or more of disturbed area, the project must also meet the phosphorus standard.

b. If the lake is not a severely blooming lake, and the project includes less than three acres of impervious area and less than five acres of disturbed area, the project must meet either the 80% TSS standard on site, or the phosphorus standard.

NOTE: "Severely blooming lakes" are a subgroup of "lakes most at risk" and are identified in Chapter 502.

(ii) If a project is located in the direct watershed of a lake other than a lake most at risk, and includes three acres or more of impervious area or five acres or more of disturbed area, one of the following requirements must be met, unless the department determines based upon lake sensitivity and the nature of the project that the requirements are not necessary to avoid an unreasonable impact on the lake. In considering whether an unreasonable impact may occur, the department shall consider factors such as the type and size of the development, the sensitivity of the lake, and cumulative impacts.

a. If the project includes three acres or more of impervious area, the project must either meet the sliding scale TSS standard or the phosphorus standard.

b. If the project includes five acres or more of disturbed area, and less than three acres of impervious area, the project must meet the phosphorus standard.

(b) Coastal wetlands--A project located in the direct watershed of a coastal wetland most at risk must meet the sliding scale TSS standard.

(c) Rivers, streams or brooks--If the project is located in the watershed of a river, stream or brook most at risk, and drains to the waterbody at or above a public water supply intake, the project must meet the sliding scale TSS standard and the basic stabilization standard. If a project is located in the watershed of a river, stream or brook identified as a sensitive or threatened area, and drains to the waterbody at or within two miles above a public water supply intake, the project must meet the basic stabilization standard.

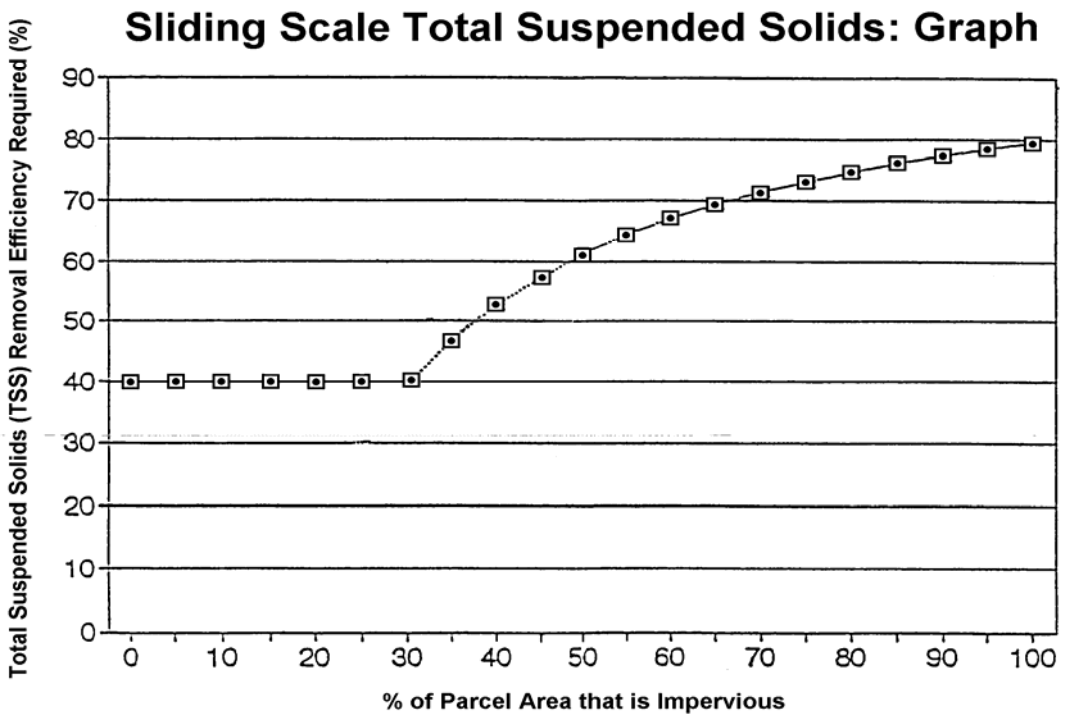
If the applicant demonstrates that it is not technically feasible to meet the applicable standard through reasonable changes in project design or density, or appropriate off-site mitigation, and the department determines that an unreasonable risk to a lake, coastal wetland, or river, stream or brook will not result, the department may allow the applicant to meet a lesser standard approved by the department. The department may only consider a lesser standard if the applicant agrees, pursuant to 38 M.R.S.A. § 344-B(3)(B), that the review period may be extended as determined to be necessary by the department.

In making its determination concerning a lesser standard, the department considers factors such as the sensitivity of the affected resource, site characteristics, the amount and rate of development in the area, the availability and appropriateness of technology or other solutions, and the availability of mitigation.

(2) Description of standards. This paragraph describes the standards mentioned in Paragraph (1). These standards are applied independently to the subwatersheds of each receiving water. If a project drains to more than one lake, subwatersheds within the project site must be delineated for every lake to which the project drains. If all or a portion of the project does not drain to a lake, but drains to more than one perennial river, stream or brook, the subwatersheds within the project site must be delineated for each.

(a) 80% TSS standard--Stormwater from the impervious and disturbed areas in each identified subwatershed on the site must be treated by the use of stormwater best management practices designed to remove 80% of total suspended solids. The prescribed level of treatment must be applied to all impervious surfaces such that the areally weighted average TSS removal equals or exceeds the prescribed removal level.

(b) Sliding scale TSS standard--Stormwater from the impervious areas and disturbed areas in each identified subwatershed on the site must be treated by the use of stormwater best management practices designed to remove total suspended solids to the levels indicated in the following graph. The prescribed level of treatment must be applied to all impervious surfaces such that the areally weighted average TSS removal equals or exceeds the prescribed removal level. See Appendix A for a table containing this information in 5% increments.



(c) Phosphorus standard. The project must incorporate appropriate stormwater best management practices so that the project will not exceed the allowable per-acre phosphorus allocation for the lake.

An allowable per-acre phosphorus allocation for each lake most at risk will be determined by the department, based upon (i) current water quality, (ii) potential for internal recycling of phosphorus, (iii) potential as a cold-water fishery, (iv) volume and flushing rate, and (v) projected growth in the watershed, and will be used to determine project phosphorus allocations unless the applicant proposes an alternative per-acre phosphorus allocation that is approved by the department. If the project is a new road in a subdivision, only 50% of the parcel's allocation may be applied to the new road unless phosphorus export from both the new road and the new lots is being addressed, in which case the entire allocation for the parcel may be applied.

NOTE: For guidance in calculating per-acre phosphorus allocations and in determining if stormwater phosphorus export from a project meets or exceeds the parcel's allocation, see "Phosphorus Control in Lake Watersheds: A Technical Guide for Evaluating New Development", Maine Department of Environmental Protection (1992).

(d) Basic stabilization standard--Each of the following requirements must be met.

(i) Ditches, swales, and other open stormwater channels must be designed, constructed, and stabilized using erosion and sedimentation control best management practices

that achieve long term erosion control, and must receive adequate routine maintenance to maintain capacity and prevent or correct any erosion of the channel's bottom or sideslopes.

(ii) Gravel roads must be designed and constructed with crowns or other measures, such as water bars, to ensure that stormwater is immediately delivered to adjacent stable ditches or vegetated buffer areas. Grading of gravel roads, or grading of the gravel shoulders of gravel or paved roads, must be routinely performed to ensure that stormwater drains immediately off the road surface to adjacent buffer areas or stable ditches, and is not impeded by accumulations of graded material on the road shoulder or by excavation of false ditches in the shoulder.

(iii) The project site must be maintained to prevent or correct erosion problems.

NOTE: The department recommends that impervious surfaces, including roads, be designed and constructed so that stormwater is distributed in sheet flow to natural vegetated buffer areas wherever such areas are available. Road ditches should be designed so that stormwater is frequently (every 200 to 400 feet) discharged via ditch turnouts in sheet flow to adjacent natural buffer areas wherever possible. Buffer areas are effective at removing pollutants from stormwater before it reaches a drainage way, stream, or other waterbody. Buffers may also be effective in controlling stormwater quantity impacts. See Section 3(A)(2).

B. Site Law development standards. A "Site Law development" is a development that may substantially affect the environment, and requires a permit pursuant to 38 M.R.S.A. §§ 481 - 490. This subsection describes how the standards described in Section 4(A) apply to proposed Site Law developments (and modifications), and when additional stormwater management requirements apply.

A development that is a "structure" as defined at 38 M.R.S.A. §482(6), or is another type of Site Law development that includes more than three acres of area considered "structure" area under the Site Law, is treated the same as a project that includes more than three acres of impervious area for purposes of applying the standards in Section 4(A). A development that proposes infiltration within the wellhead protection area of a public water supply must meet the standard in Section 4(C).

These rules address stormwater management requirements for Site Law developments. Standards other than stormwater management also apply. See 38 M.R.S.A. § 484 and the rules adopted pursuant to the Site Law.

NOTE: The "80% TSS standard", "sliding scale TSS standard", and "basic stabilization standard" referred to below are described in Section 4(A)(2).

(1) Lakes. The standards in Section 4(A)(1)(a), "Lakes", apply to Site Law developments.

(2) Coastal wetlands. The standards in Section 4(A)(1)(b), "Coastal wetlands", apply to Site Law developments.

(3) Rivers, streams or brooks. The standards in Section 4(A)(1)(c), "Rivers, streams or brooks", apply to Site Law developments. The following requirements must also be met.

(a) When in a river, stream or brook watershed other than that of a river, stream or brook most at risk, and the development includes more than three acres of structure area, the basic stabilization standard, and one of the following two standards if applicable, must be met.

(i) If the development discharges directly to a river, stream or brook other than a major river segment listed below, the project must meet the sliding scale TSS standard unless the department determines that stormwater quality controls are not necessary to avoid an unreasonable impact to the waterbody. This determination is based upon factors including, but not limited to, the type and size of the project, the size of the watershed at the point of discharge, the flow of the stream, the extent to which the stream has previously been altered, and soils.

(ii) If the development discharges directly to a major river segment listed below, and the department determines that a public water supply may be affected, the project must meet the sliding scale TSS standard.

The rivers or portions of rivers identified for purpose of (i) and (ii) above are: Saco River; Androscoggin River; Kennebec River; West Branch Penobscot River below Elbow Lake; East Branch Penobscot River below Wassataquiok Stream; Piscataquis River below Dover-Foxcroft; St. Croix River below Grand Lake; Aroostook River below Ashland; and St. John River below the Allagash River.

(b) A development discharging stormwater to a stream supporting a coldwater fishery must design its best management practices to avoid an unreasonable thermal impact on the fishery, as determined by the department.

(4) Freshwater wetlands. If the development is located in the watershed of a freshwater wetland and the department determines that stormwater quality controls are necessary to avoid degrading the habitat of a threatened or endangered species, the project must meet the sliding scale TSS standard.

The department may require additional controls if it determines they are necessary in order to avoid an unreasonable impact on any wetland or waterbody due to pollutants that are not adequately addressed by the standards described above. This is a case-by-case determination based upon factors such as the size, nature and intensity of the development, characteristics of the resource affected, topography and soils.

For example, stormwater from a metallic mineral mining or advanced exploration activity regulated under 06-096 CMR 200 may contain contaminants, such as very low pH, high acidity, and high concentrations of dissolved metals, for which stormwater quality BMPs for other commercial or industrial developments do not provide adequate treatment. For those areas of development regulated under 06-096 CMR 200 within which ore or mine waste are not stored or handled, the stormwater quality standard under Section 3(A) may be applied. However, the applicant must specifically demonstrate that stormwater BMPs proposed for other areas of the site will provide adequate treatment of stormwater to prevent degradation of waters of the state.

C. Wellhead protection area (public water supply) standard. Any project proposing infiltration of stormwater within the wellhead protection area of a public water supply must provide adequate pre-treatment of stormwater prior to discharge of stormwater to the infiltration area, if pre-treatment is recommended as part of applicable stormwater best management practices or required by the department. The infiltration area must minimize discharge of soluble pollutants to groundwater, and must be maintained in order to assure that its capacity for infiltration and pollutant removal is unimpaired.

5. Off-set. The department may allow the applicant to off-set the inability of a project to meet certain stormwater quality standards described in Section 4(A) through the elimination or reduction of other sources if, as determined by the department, the stormwater quality standards cannot be met by reasonable redesign of the project or use of reasonably available stormwater best management practices. The project must still meet stormwater quantity standards.

Off-site mitigation applies to the elimination or reduction, but not treatment, of off-site impervious areas or sources of phosphorus or TSS. A source is considered to be eliminated if impervious area is removed, and the area revegetated and returned to a wooded condition. A source is considered to be reduced if the impervious area is removed, and the area revegetated and maintained as a lawn or other non-forested area. The source or sources must be eliminated or reduced to the degree necessary to off-set the impact of the TSS or phosphorus export from the project to the resource identified.

A. Calculations. This off-set must be calculated as provided in this subsection.

(1) TSS off-set. If the project is required to meet the 80% TSS standard or sliding scale TSS standard, an off-set credit may be allowed. The credit will be based on the ratio of eliminated or reduced off-site impervious area to new on-site impervious area, and applied at a rate of two acres of reduced or eliminated off-site impervious area to every acre of new impervious area created. The following formulas are used to calculate the new (reduced) required % TSS removal. If the applicant can demonstrate, based on type of impervious area and intensity of use, that the level of stormwater pollutant export from the off-site impervious area is, on a per acre basis, equivalent to or greater than that expected from the proposed new impervious area, the 0.5 in the first formula may be replaced with 1.0, (changing the credit rate to 1 to 1).

Offset credit = 1 - [(0.5 x off-site impervious acres x (1 - offset BMP TSS removal efficiency)) ÷ New impervious acres]

New required % TSS removal = [Offset credit x (Old required % TSS removal - 40%)] + 40%.

The required % TSS removal may not be reduced below 40%.

(2) Phosphorus off-set. If the project is required to meet the phosphorus standard, an off-set credit may be allowed. For every two pounds of estimated off-site phosphorus export that is eliminated or reduced, estimated on-site phosphorus export may be reduced by one pound, provided the elimination or reduction of off-site existing sources does not require maintenance. If the applicant can demonstrate, based on type of impervious area and intensity of use, that the level of phosphorus export from the eliminated or reduced off-site area is equivalent to or greater than that expected from the proposed new impervious area, the credit may be allowed at a ratio of 1 to 1.

NOTE: For guidance in determining phosphorus export see "Phosphorus Control in Lake Watersheds", Maine Department of Environmental Protection (1992).

B. Location. The source eliminated or reduced must be located so as to off-set the impact of the TSS or phosphorus export from the project to the resource affected by the project. In general, this requires that the source eliminated or reduced be located in the same watershed or region as the resource protected by the applicable stormwater quality standard. More than one source may be reduced or eliminated.

(1) If the project is located in the watershed of a lake, the source that is eliminated or reduced must be located in the watershed of that lake.

(2) If the project will discharge directly into a coastal wetland, or to a stream that does not appear or is not named on a USGS topographic map and flows directly into a coastal wetland, the source that is eliminated or reduced must be located in the watershed of the coastal wetland.

(3) If the project will discharge directly to a stream that is named on a USGS topographic map, the source eliminated or reduced must be in the watershed of that stream.

(4) If the project will discharge to a stream that does not appear or is not named on a USGS topographic map, the source eliminated or reduced must be in the watershed of the first named stream to which the stream flows.

C. Maintenance and transfer. Areas revegetated in order to off-set the stormwater quality impacts of new development must be maintained as provided in the permit, and any transfer of these areas must be made subject to deed restrictions that require such maintenance and are enforceable by the department.

6. Submissions. The application must include evidence that affirmatively demonstrates that the standards will be met, including information such as described in this section, when appropriate. Designs required pursuant to this section must be prepared under the supervision of, and signed and sealed by, a Registered Professional Engineer in the State of Maine, who by education, training, or experience is knowledgeable in stormwater management, with the following exception. If a project includes less than 3 acres of impervious area, then ditches, swales, and other open stormwater channels that drain no more than one acre of land, and level spreaders that receive drainage from no more than one acre of land, must be designed by a Registered Professional Engineer in the State of Maine who by education, training, or experience is knowledgeable in stormwater management, or by a professional who is registered, licensed, or certified in a related land-use field, and by education, training, or experience is knowledgeable in stormwater management, and has received specific training in the design of ditches, grassed swales, and level spreaders at a department-sponsored stormwater management workshop.

A. Stormwater quantity

(1) Narrative. A narrative describing how the site is oriented within the watershed, identifying downstream ponds, lakes, and mapped wetland areas, and addressing the effects of the site runoff on the watershed hydrograph and nearby properties. Identify areas, buildings, and facilities that historically flood or which may be affected by the site runoff. Discuss the

assumptions used in determining runoff curve numbers, time of concentration, and travel time calculations for each drainage sub-area.

(2) Plan

(a) Pre-construction drainage study plans showing existing contours, and all topographic features including but not limited to: buildings and facilities, natural and man-made drainageways, streams, channels, culverts, cover type, elevation bench marks and datum, catch basins, roads, drainage easements, hydrologic flow lines, hydrologic soil groups, and watershed boundaries (on and off site).

(b) Post-construction or phased drainage study plans showing final or phased contours, all relevant existing contours, and all proposed topographic features including but not limited to: buildings and other facilities, natural and man-made drainageways, streams, channels, culverts, catch basins, roads, drainage easements, cover type, elevation bench marks and datum, hydrologic flow lines, hydrologic soil groups, and final or phased watershed boundaries (on and off site).

(3) Calculations. The stormwater quantity calculations must be in accordance with acceptable engineering practice.

Acceptable stormwater methodologies and models include but are not limited to "TR-20 - Computer Program for Project Formulation - Hydrology," Second Edition, U.S. Department of Agriculture, Soil Conservation Service (May 1983); "TR-55 - Urban Hydrology for Small Watersheds," Second Edition, U.S. Department of Agriculture, Soil Conservation Service (June 1986); TR-55 Microcomputer Program, Version 2.0, (January 15, 1990); and "HEC-1 Flood Hydrology Package", U.S. Army Corps of Engineers. Any methodology other than those listed must have prior approval from the department. Use of the 25-year, 24-hour storm as a design standard in this chapter is not intended to prohibit appropriate use of the rational method.

NOTE: For guidance, see "Stormwater Management for Maine: Best Management Practices" (1995).

(a) Pre-construction stormwater calculations for 2-, 10-, and 25-year, 24-hour storms including runoff curve numbers, time of concentration, and travel times for each sub-area.

(b) Post-construction, site operation, or phased stormwater calculations for 2-, 10-, and 25-year, 24-hour storms including runoff curve numbers, time of concentration, and travel times for each sub-area.

(c) Calculations of the 100-year, 24-hour storm impact on downstream structure(s) and the receiving water body, if in or discharging into a designated 100-year flood area.

(4) Detention basins

(a) Basin storage values and sizing calculations including stage-storage curves and outlet velocities for each detention basin.

(b) Outlet and spillway detail and sizing calculations for each detention basin.

(c) Basin cross-sections that show and identify the water level elevations for the 2-, 10-, and 25-year, 24-hour storms.

(d) Detail sheet showing plan and cross-sectional views of the detention basin(s), outlet structure(s), emergency overflow structure(s), associated riprapped areas, and other details necessary for construction.

B. Stormwater quality

(1) Narrative. A narrative describing how the site is oriented within the watershed, identifying downstream ponds, lakes, and mapped wetland areas, and addressing the effects of the site runoff. Identify and discuss stormwater treatment methods to be used on the site.

(2) Plan. A plan showing final or phased contours, all relevant existing contours, and all proposed topographic features including but not limited to: buildings and other facilities, natural and man made drainageways, streams, channels, culverts, catch basins, roads, drainage easements, stormwater quality treatment facilities, points of concern, and associated drainage area(s).

The stormwater quality plan must include detail drawings of the stormwater best management practices and specifically show the location of both structural and nonstructural best management practices.

(3) Calculations. Calculations must include assumptions and associated calculations demonstrating that the stormwater treatment will be to at least the level required by Section 4.

7. Permit by rule. A person may apply for a permit by rule from the department prior to beginning work on a project, rather than applying for an individual permit, if the person meets the standards of subsections (A), (B) or (C) below. The application must be on a form provided by the department. The application is deemed approved 14 calendar days after the department receives the application form, unless the department approves or denies the application, or notifies the applicant that the applicant is ineligible for permit by rule, or requires additional information or further review, prior to that date. If the department does not otherwise notify the applicant within the 14-day period, the application is deemed approved by the department.

Designs required pursuant to this section must be prepared under the supervision of, and signed and sealed by, a Registered Professional Engineer in the State of Maine, who by education, training or experience is knowledgeable in stormwater management, with the following exception. If a project includes less than 3 acres of impervious area, then ditches, swales, and other open stormwater channels that drain no more than one acre of land, and level spreaders that receive drainage from no more than one acre of land, must be designed by a Registered Professional Engineer in the State of Maine who by education, training, or experience is knowledgeable in stormwater management, or by a professional who is registered, licensed, or certified in a related land-use field, and by education, training, or experience is knowledgeable in stormwater management, and has received specific training in the design of ditches, grassed swales, and level spreaders at a department-sponsored stormwater management workshop.

A. Small project in the direct watershed of a lake most at risk. For a project that is located within the direct watershed of a lake most at risk other than a severely blooming lake, that will create 20,000 square feet or more, but less than one acre, of new impervious area on the parcel, and that does not require a site location of development permit, the following standards must be met. Stormwater from at least 90% of the project's impervious area must either drain overland in unconcentrated and unchannelized flow to a buffer, or be evenly delivered in unconcentrated and unchannelized flow to a buffer by means of a level spreader.

(1) Wooded buffer width. If the buffer is wooded, it must be at least 75 feet wide as measured along the direction of flow through the buffer.

(2) Non-wooded buffer width. If the buffer is non-wooded, it must be at least 125 feet wide as measured along the direction of flow through the buffer.

(3) Wellhead protection area. If any part of the buffer is in a wellhead protection area, the applicant must detail how the standards of Section 3(J) and 4(C) will be met.

NOTE: "Severely blooming lakes" are a subgroup of waterbodies most at risk and are described in Chapter 502.

B. Small project in the direct watershed of a coastal wetland, river, stream or brook most at risk. For a project that is located within the direct watershed of a coastal wetland, river, stream or brook most at risk, that will create 20,000 square feet or more, but less than 1 acre, of new impervious area, that will have less than or equal to 50% of the parcel area covered by impervious surfaces, and that does not require a site location of development permit, the following standards must be met. Stormwater from at least 90% of the project's impervious area must either drain overland in unconcentrated and unchannelized flow to a buffer, or be evenly delivered in unconcentrated and unchannelized flow to a buffer by means of a level spreader.

(1) Wooded buffer width. If the buffer is wooded, it must be at least 50 feet wide as measured along the direction of flow through the buffer.

(2) Non-wooded buffer width. If the buffer is non-wooded, it must be at least 100 feet wide as measured along the direction of flow through the buffer.

(3) Wellhead protection area. If any part of the buffer is in a wellhead protection area, the applicant must detail how the standard of Section 3(J) and 4(C) of this chapter will be met.

C. Small project in a sensitive or threatened region or watershed. For a project that is located in a sensitive or threatened region or watershed, that will create less than three acres of impervious area and less than five acres of disturbed area on the parcel, and that does not require a site location of development permit, the following stormwater quality standards must be met.

(1) Ditches, swales, and other open stormwater channels. Ditches, swales, and other open stormwater channels must be designed, constructed, and stabilized using erosion and sedimentation control best management practices that achieve long term erosion control, and must receive adequate routine maintenance to maintain capacity and prevent or correct any erosion of the channel's bottom or sideslopes.

(2) Roads. Gravel roads must be designed and constructed with crowns or other measures, such as water bars, to ensure that stormwater is immediately delivered to adjacent stable ditches or vegetated buffer areas. Grading of gravel roads or grading of the gravel shoulders of gravel or paved roads, must be routinely performed to ensure that stormwater drains immediately off the road surface to adjacent buffer areas or stable ditches, and is not impeded by accumulations of graded material on the road shoulder or by excavation of false ditches in the shoulder.

(3) Maintenance. The project site must be maintained to prevent or correct any erosion problems.

(4) Wellhead protection area. If any part of the buffer is in a wellhead protection area, the applicant must detail how the standards of Section 3(J) and 4(C) will be met.

NOTE: The department recommends that impervious surfaces, including roads, be designed and constructed so that stormwater is distributed in sheet flow to natural vegetated buffer areas wherever such areas are available. Road ditches should be designed so that stormwater is frequently (every 200 to 400 feet) discharged via ditch turnouts in sheet flow to adjacent natural buffer areas wherever possible. Buffer areas are effective at removing pollutants from stormwater before it reaches a drainage way, stream or other waterbody. Buffers may also be effective in controlling stormwater quantity impacts. See Section 3(A)(2).

8. Municipal program. The department may allow a municipality or a quasi-municipal organization, such as a watershed management district, to substitute a management system for stormwater for the stormwater permit requirement pursuant to 38 M.R.S.A. § 420-D(2). The management system may apply to an entire watershed, or a subwatershed, of a receiving water, and may include multiple watersheds within the jurisdiction of the municipality or quasi-municipal organization. A project located within the area served by a management system approved by the commissioner is exempt from the stormwater permit requirements contained in this rule.

The municipality or quasi-municipality may elect to have the substitution take effect at the time the system is approved by the department, or at the time the system is completed as provided in the implementation schedule provided by the department.

A. Program approval criteria. The municipality or quasi-municipal organization must demonstrate that the following criteria are met.

(1) Relationship to water quality. The municipality or quasi-municipal organization must have a stormwater treatment plan that, upon implementation, will result in the collective treatment of stormwater from new and existing sources within the watershed and will result in water quality in the receiving water that is as good, or better, than would be the case if the department required stormwater permits for individual projects, as determined by the department.

(2) Funding and implementation. The plan must include funding provisions and an implementation schedule that provides that the treatment system for new and existing sources will be in place and functioning within five years unless a longer time period, up to 10 years, is approved by the department.

NOTE: The municipality or quasi-municipal organization may institute fees or secure other funding sources prior to the operation of the plan.

(3) Annual reporting. The plan must also include a provision for annual reporting on progress toward implementation and a listing of the new development within the jurisdiction of the management system.

B. Reinstatement of permit requirement. The department may reinstate the stormwater permit requirement if it finds that the implementation schedule is not being met, or that the management system is not achieving the plan's objectives.

9. Conditions of approval. The following conditions of approval apply to a stormwater permit (individual or permit by rule) required pursuant to 38 M.R.S.A. § 420-D.

A. Standard conditions of approval. Unless otherwise specifically stated in the approval, a department approval is subject to the following standard conditions.

(1) Approval of variations from plans. The granting of this approval is dependent upon and limited to the proposals and plans contained in the application and supporting documents submitted and affirmed to by the applicant. Any variation from these plans, proposals, and supporting documents must be reviewed and approved by the department prior to implementation. Any variation undertaken without approval of the department is in violation of 38 M.R.S.A. § 420-D(8) and is subject to penalties under 38 M.R.S.A. § 349.

(2) Compliance with all terms and conditions of approval. The applicant shall submit all reports and information requested by the department demonstrating that the applicant has complied or will comply with all terms and conditions of this approval. All preconstruction terms and conditions must be met before construction begins.

(3) Advertising. Advertising relating to matters included in this application may not refer to this approval unless it notes that the approval has been granted WITH CONDITIONS, and indicates where copies of those conditions may be obtained.

(4) Transfer of project. Unless otherwise provided in this approval, the applicant may not sell, lease, assign, or otherwise transfer the project or any portion thereof without written approval by the department where the purpose or consequence of the transfer is to transfer any of the obligations of the developer as incorporated in this approval. Such approval may only be granted if the applicant or transferee demonstrates to the department that the transferee agrees to comply with conditions of this approval and the proposals and plans contained in the application and supporting documents submitted by the applicant. Approval of a transfer of the permit must be applied for no later than two weeks after any transfer of property subject to the license.

(5) Initiation of project within two years. If the construction or operation of the activity is not begun within two years, this approval shall lapse and the applicant shall reapply to the department for a new approval. The applicant may not begin construction or operation of the project until a new approval is granted. A reapplication for approval may include information submitted in the initial application by reference.

(6) Reexamination after five years. If the project is not completed within five years from the date of the granting of approval, the department may reexamine its approval and impose additional terms or conditions or prescribe other necessary corrective action to respond to significant changes in circumstances or requirements which may have occurred during the five-year period.

(7) Certification. Contracts must specify that "all work is to comply with the conditions of the Stormwater Permit." Work done by a contractor or subcontractor pursuant to this approval may not begin before the contractor and any subcontractors have been shown a copy of this approval with the conditions by the developer, and the owner and each contractor and subcontractor has certified, on a form provided by the department, that the approval and conditions have been received and read, and that the work will be carried out in accordance with the approval and conditions. Completed certification forms must be forwarded to the department.

(8) Maintenance. The components of the stormwater management system must be adequately maintained to ensure reasonable operation of the system.

B. Special conditions. The department may, as a term or condition of approval, establish any reasonable requirement to ensure that the proposed project will proceed in accordance with the Stormwater Management Law and rules. However, terms and conditions must address themselves to specifying particular means of satisfying minor or easily corrected problems relating to compliance with the Stormwater Management Law, and may not substitute for or reduce the burden of proof of the developer to affirmatively demonstrate to the department that each of the standards of the Stormwater Management Law has been met.

10. Recording of order. The department shall record each order approving or modifying a permit pursuant to Chapters 500 and 502 in the appropriate registry of deeds.

11. Severability. Should any provision of these rules be declared invalid or ineffective by court decision, the decision shall not invalidate any other provision of these rules.

12. Transition. Laws 1995, c. 704, § B-4 provides that impervious areas and disturbed areas created prior to July 1, 1997 are not counted when determining the amount of such areas on a parcel, although such areas may be reviewed to the extent necessary to ensure that controls intended to address new areas function adequately. New construction on an impervious area created prior to July 1, 1997 is not counted when determining the amount of impervious area on a parcel. An area is considered "created" for purposes of this provision when local approval has been received, and construction has begun.

13. Permit shield. Compliance with a permit issued in accordance with this chapter is considered compliance with Section 4 of this chapter. If a stormwater best management practice is approved by the department and, although adequately and appropriately constructed and maintained by the permittee, as determined by the department, it fails to meet a water quality standard provided in Section 4, the permittee is not in violation for failing to comply with the standard.

Nothing in this section alters or affects the liability of the permittee if a violation has occurred prior to permit issuance.

APPENDIX A

SLIDING SCALE FOR TOTAL SUSPENDED SOLIDS

% of Parcel area that is impervious	% TSS Removal Efficiency Required
0	40
5	40
10	40
15	40
20	40
25	40
30	40
35	47
40	53
45	59
50	62
55	66
60	68
65	70
70	72
75	74
80	75
85	77
90	78
95	79
100	80

AUTHORITY: 38 M.R.S.A. §§ 341-D, 420-D, and 484

EFFECTIVE DATE: December 31, 1997